UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,882	01/19/2005	Frank Haase	TS8580US	8843

7590 05/04/2007

Jennifer D Adamson
Shell Oil Company
Intellectual Property
P O Box 2463
Houston, TX 77252-2463

EXAMINER	
PRICE, CARL D	

ART UNIT	PAPER NUMBER
3749	

MAIL DATE	DELIVERY MODE
05/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,882	HAASE, FRANK	
	Examiner	Art Unit	
	CARL D. PRICE	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/03/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims **1-7** and **9-17** have been considered but are moot in view of the new ground(s) of rejection.

Applicant has amended the claims to be of a scope not previously considered. Consistent with applicant's argument that the prior art relied on in the previous office action fail to show, disclose and/or teach certain aspects of applicant's invention now recited in the claims filed on **01/03/2007,** applicant has amended the claims to include at least the following:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims **1-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **US004629414 (Buschulte)** in view of **Suppes et al** (Compression-Ignition Fuel Properties of Fischer-Tropsch Syncrude, Ind. Eng. Chem. Res. 1998, 37 2029-2038) in view of **US004764266 (Chen et al), US005807413 (Wittenbrink et al), US006787022 (Berlowitz et al)** and **US003808802 (Tanasawa).**

US004629414 (Buschulte) show and disclose a liquid fuel blue flame burner relying on hot gases from the flame front flowing back outside the mixing tube to a recirculation port on the upstream end of the tube.

US004629414 (Buschulte) discloses:

> (3) Burners of the above-described type are known from, e.g. **German Pat. No. 27 00 671** and **German Offenlegungsschrift No. 29 18 416**.
>
> (4) **In these prior-art burners**, air is supplied to the fuel that is fed through a centrally-disposed nozzle. The air is supplied through openings provided in an orifice plate that surrounds the nozzle. Air and fuel are mixed in a mixing chamber downstream from the nozzle, the mixing chamber being situated in a mixing tube. In operation, a flame front is formed in the area of the downstream end of the mixing tube. **Hot gases from the flame front flow back outside the mixing tube to a recirculation port on the upstream end of the tube.**
>
> (11) An air duct is arranged ahead of the openings to provide an approximately parallel combustion air flow before the air passes through the openings and enters the mixing chamber. This reduces the air flow disturbances and prevents turbulence being carried over into the mixing chamber. Otherwise, the turbulence would persist in the flame and in the recirculating stream and would result in an increased combustion noise level.
>
> (2) This invention applies to many various **oil or gas** burners and is explained below based on an exemplary Bunsen type burner, i.e. a burner in which oil is burned completely with **blue flame**. **The invention is not, however, limited to such burner type.** The desired noise reduction may be obtained using the features defined herein, also in the case of, for instance, preheating burners or torches and **yellow-flame** burners.
>
> (Highlighting and Underlining Added)

US004364725 (Buschulte) show and disclose a liquid fuel blue flame burner relying on hot gases from the flame front flowing back outside the mixing tube to a recirculation port on the upstream end of the tube.

US004364725 (Buschulte) discloses:

> **Blue-flame oil burners** require that the oil reaching the point of combustion is completely vaporised before it reaches that point. The operation of an oil burner with a blue flame has the advantage that the burner is able to operate with very small excess of air over that required for complete combustion so that practically stoichiometric combustion takes place. Since combustion takes place with very small excess of air a very hot flame is produced which utilises the energy content of the fuel optimally and leads to improved heat transfer. In addition, the waste gases **in comparison** with waste gases from an optimally adjusted burner with **a yellow flame** contain **extremely little harmful material** (soot, **NO.sub.x,** SO.sub.3).

(17) With stoichiometric combustion in the flame tube 42 practically no free oxygen is present. This is another reason why the flame tube 42 may be made of heat resistant steel without risk of wear due to scaling or oxidation. Alternatively, the flame tube 42 may be made from a heat resistant ceramic material or a steel tube having a heat resistant ceramic coating may be used. It is possible to arrange for the flame tube to be cooled, for example, the **heating water.** In this case the flame tube may, for example, form part of the **heat exchange system of the boiler**. With cooled flame tubes, it is not necessary to use hightly heat resistant materials.

(15) **With blue flames**, **monitoring of the flame** cannot be carried out optically. **To guarantee a reliable automatic operation** of the blue-burning flame monitoring is possible by means of an **ionisation detector 44** which is **connected in known manner to a control device 46** by means of which, when the flame is extinguished, the supply of oil is cut off by closing the valve 18 and the motor 12 is switched off. After the flame has been produced the ignition device is also switched off by the control device in known manner.

Suppes et al (Compression-Ignition Fuel Properties of Fischer-Topsch Syncrude, Ind. Eng. Chem. Res. 1998, 37 2029-2038) teaches, from applicant's same liquid combustion fuel field of endeavor, burning light Fischer-Tropsch fuels or Syncrude (see page 2030, column 1, lines 27-36) in combustion apparatus such as internal combustion engines, as a suitable alternative to diesel and gasoline fuels (see page 2031, column 2, lines 4-35) in for example conventional diesel engines. Known light Fischer-Tropsch fuels disclosed by **Suppes et al** include the following properties:

- > 70% Fischer-Tropsch syncrude(see page 2031, column 2, lines 4-35), or 90% (by mass) of the light syncrude composition (see page 2029, column 2, lines 1-4);
- near-zero aromatic contents; and
- a boiling point of 170.6-314.9° C (Table 1).

US004764266 (Chen et al) teaches, from applicant's same Fischer-Tropsch derived fuel field of endeavor, a process for using or burning middle distillate Fischer-Tropsch derived fuel having typically boiling in the 165.degree. to 345.degree. C. (about 330.degree. to 650.degree. F.) with lesser proportions of naphtha as a **"home heating oil"** (see column 10, line 16-34). This middle distillate fraction is, however, relatively **low in sulfur** and generally meets product specifications for use as a light fuel oil, e.g. **home heating oil**, diesel and **jet fuels**. **US004764266 (Chen et al)** acknowledges the presence of non-mineral fractions, or additives, in the Fischer-Tropsch distillate (e.g. – unconverted fractions).

US005807413 (Wittenbrink et al) teaches, from applicant's same Fischer-Tropsch derived fuel field of endeavor, that fuels produced by the Fischer-Tropsch process have essentially nil sulfur and nitrogen. See also, for example, **US006787022 (Berlowitz et al)** which teaches Fischer-Tropsch fuel characterized by "1) paraffins at least 90 + wt %, preferably at least 95 + wt %, more preferable at least 99 + wt % sulfur .ltoreq.10 ppm (wt), preferably <5 ppm, most preferably < 1 ppm nitrogen .ltoreq.10 ppm (wt), preferably <5 ppm, most preferably < 1 ppm aromatics <1%, preferably <0.1% cetane number >65, preferably >70, more preferably >75"). **US006787022 (Berlowitz et al)** yields of distillate fuels with excellent cold flow properties are produced from wax containing paraffins derived from the Fischer-Tropsch process to produce a full boiling range diesel fuel, preferably a **320-700** degrees F (i.e. **160-371** degree C) fraction, with the unique combination of high cetane number, very low cloud and cold filter plugging point (CFPP) performance and full boiling range cut exhibiting **superior emissions performance.**

US005807413 (Wittenbrink et al) discloses:

> (7) By virtue of using the **Fischer-Tropsch** process, the recovered distillate **has essentially nil sulfur and nitrogen**. These hereto-atom compounds are poisons for Fischer-Tropsch catalysts and are removed from the synthesis gas that is the feed for the Fischer-Tropsch process. (Sulfur and nitrogen containing compounds are, in any event, in exceedingly low concentrations in synthesis gas.) Further, **the process does not make aromatics**, or as usually operated, virtually no aromatics are produced. Some olefins are produced since one of the proposed pathways for the production of paraffins is through an olefinic intermediate. Nevertheless, olefin concentration is usually relatively low.
>
> (19) Although the studies in the three SAE papers did not deliberately vary either the density or the distillation profile of the fuels, these properties, of necessity, were varied as a natural consequence of changing the fuel cetane number and aromatic content. The results of these studies were that particulate matter (PM) emissions were primarily affected by the cetane number, sulfur content, oxygen content and aromatic content of the fuels. However., **neither fuel density nor distillation profile had any effect on particulate matter (PM) emissions in these studies.**
>
> (Highlighting and Underlining Added)

US003808802 (Tanasawa) teaches, from applicant's same liquid combustion fuel field of endeavor, that is known to operate combustors used for various purposes such as for home use, for industrial use, for gas turbines and for jet engines, and operating under either "yellow

flame" or "blue flame" conditions, with "all kind of fuels, such as gas fuel, gasoline, lamp oil, light oil, heavy oil and the like" and "can be equally burned in a wide range of air -fuel ratio".

US003808802 (Tanasawa) discloses the following:

"(3) The present invention relates to a vortex combustor which can be used for various purposes such as **for home use**, for industrial use, for gas turbines and for jet engines."

"(4) 2. The Prior Art
"... moreover, a high intensity combustion is carried out in the combustion chamber of the vortex combustor, so that **all kind of fuels**, such as gas fuel, **gasoline, lamp oil, light oil, heavy oil and the like**, can be equally burned in **a wide range of air -fuel ratio**."

"(5) In case of the various conventional combustors, because of their structure and severe operating condition, only in the narrow range of air -fuel ratio, the combustion efficiency and the combustion intensity (the weight of fuel which can be burned per unit time in the unit volume,or calorific value of the said fuel; kcal/m.sup.3 -hr-atm) can be kept high in some degree. In the case of such combustors designed for gas turbines and for jet engines, it is necessary to supply a large amount of air into the combustion chamber in proportion to its output. If this air flow increases, combustion flame does not spread to the whole inside wall of the combustion chamber, and the mixture of air and fuel is not burned with high intensity, so the combustion efficiency and the combustion intensity becomes low. While there have been many studies about vortex combustors, a satisfactory combustor for practical use has not yet been provided, mainly because of the fact that these studies haven't cleared up some of the important characteristics of vortex combustors."

"(68) Since the fuel stays for a long period of time in the first and the second combustion chambers because of the swirling flow pattern, the combustion efficiency becomes as high as nearly 100 percent, whether the combustion condition in the combustion chamber is the **yellow flame** combustion or the **blue flame** combustion."

"(86) The vortex combustor of the present invention can be applied to various combustors using heat energy **for home** use or industrial use, and various combustors for heat motors using mechanical energy converted from heat energy, besides gas turbine engines for automobiles and for aircraft, which are described herein with relation to the first and second embodiments. For example, they can be **used as various combustors using heat energy, such a boilers, burners, steam motors, heating apparatus and water boilers**. They **can also be used as the combustors for** heat motors using mechanical energy which is converted from heat energy, such as various steam turbines, gas turbines, jet engines and steam engines, which **can be employed in many fields,** for example, for aircraft, ships, motor vehicles, electric generation and for industrial motive force in various works."
(Highlighting and Underlining Added)

In regard to claims **1-22**, for the purpose for providing a suitable fuel for conventional home heating systems, it would have been obvious to a person having ordinary skill in the art to

operate home heating systems operated with a blue flame burner such as in **US004629414 (Buschulte),** or boiler heating systems as in **US004364725 (Buschulte),** to be fueled with Fischer-Tropsch fuel having no additives and "nil" or less than 1 ppm nitrogen and sulfur and low aromatic content and a density similar to that of home heating fuels (i.e. – between 0.65 and 0.8 g/cm^3 at 15° C), in view of the teaching of the **Suppes et al ,US004764266 (Chen et al)** and **US005807413 (Wittenbrink et al)** and **US006787022 (Berlowitz et al).** In addition, in view of the teaching of **US003808802 (Tanasawa),** it would have been obvious to a person having ordinary skill in the art to operate combustion systems used for various purposes such as for home use, for industrial use, for gas turbines and for jet engines with all kind of fuels such as a Fischer-Tropsch fuel and which generally meets product specifications for use as a light fuel oil, e.g. home heating oil, diesel and jet fuels, wherein the burner is capable of operating in a wide range of air-fuel ratio, or "lambda".

In regard to for example claims 2-7, and 19, since the 1) "lambda" (assumed for the sake of examination to refer to the ratio of an oxidant to fuel necessary for combustion), 2) the number of burner operations per hour, and 3) the type of flame detector used to detect the burner flame, would necessarily depend on numerous design concerns such as the operational characteristics of a given burner and heating system installation and the type of oxidant being used, and would necessarily and predictably result from optimization of a given burner and heating system installation, the claimed "lambda" values can be viewed as nothing more than merely a matter of choice in design and/or a result-effective variable, i.e., a variable which achieves a recognized result. Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

In regard to claims 11-13, Official Notice is taken that it is well known to provide liquid fuels with odor or aroma (see for example US001944175) and color markers (See for example US005560855), and yellow flame coloring additives, for the purpose of aiding in readily identifying the fuel, and for aiding in making the flame visible (see for example

US2002/0090585 or US006488726). Thus, in view of that which is well know in the art and for the known purpose, it would have been obvious to a person having ordinary skill in the art to modify the **US004629414 (Buschulte)** or **US004364725 (Buschulte)** fuel to include odor and color markers.

Conclusion

See the attached USPTO Form 948 for prior art made of record and not relied upon which is considered pertinent to applicant's disclosure.

US006787022 (Berlowitz et al) disclose:

> (1) paraffins at least 90 + wt %, preferably at least 95 + wt %, **more preferable at least 99 + wt % sulfur** .ltoreq.10 ppm (wt), preferably <5 ppm, **most preferably < 1 ppm nitrogen** .ltoreq.10 ppm (wt), preferably <5 ppm, **most preferably < 1 ppm aromatics** <1%, **preferably <0.1%** cetane number >65, preferably >70, more preferably >75
>
> (Highlighting and Underlining Added)

US004111642 (Kopp) discloses:

> "(8) If the burner of FIG. 2 is to be started up, switchover device 17' is moved in the direction of arrow 34, and tubular member 31 acting as a shield closes long slits 30 so that the combustion air can be guided in the direction of arrow 36 between the two air feed pipes 22 and 23. When the mixture-distributor 10 is sufficiently heated, switchover device 17' will be shifted in the direction of arrow 33 coaxially to the burner feed pipe, and then funnel 32 of tubular piece 31 will abut neck 35, thereby blocking off annular passage 29 so that the combustion air will now be guided in the direction of arrow 37 via air feed pipe 22. Immediately thereafter the flame, which previously **burned yellow**, will **burn blue**."
>
> (Highlighting and Underlining Added)

US004302180 (Le Mer) discloses:

> 8) According to another known burner principle, the liquid fuel is gasified, for example in a pot, and then burnt, mixed with air, in the form of **yellow flame**, sometimes **blue, according to the method adopted.** This form of combustion has the drawback of being difficult to control, according to the draft of the chimney, and generally necessitates an excess of air, which reduces the yield.
>
> (Highlighting and Underlining Added)

DE004323300A1 (English Language Abstract) discloses:

> The device includes an air-guiding member (1) which is arranged in front of a burner nozzle (4) in order to generate **a first airflow for recirculation** and a second airflow for mixture preparation. The air-guiding member (1) has swirl elements (11, 15) in order to divide the airstreams into partial airstreams (13, 17) and, with simultaneous or subsequent deflection, direct them tangentially or radially to the fuel. The **device can be used in burners** with **blue** or **yellow burner flame**
>
> USE/ADVANTAGE - Mixing device in burner produces **blue and/or yellow flames** in the burner and **to reduce effectively the production of NOx**.
>
> (Highlighting and Underlining Added)

US004090854 (Davis) discloses:

> The **normally liquid fuel compositions** of this invention normally **are based on fuels derived from petroleum sources, e.g., normally liquid petroleum distillate fuels**, though they may include those produced synthetically by the **Fischer-Tropsch** and related processes, the processing of organic waste material or the processing of coal, lignite or shale rock. **Such fuel compositions have varying boiling ranges, viscosities, cloud and pour points, etc., according to their end use as is well known to those of skill in the art. Among such fuels are** those commonly known as motor and aviation gasoline, diesel fuels, **jet engine fuel**, kerosene, distillate fuels, **heating oils**, **residual fuels**, bunker fuels, etc. The properties of such fuels are well known to skilled artisans as illustrated, for example, by ASTM Specifications D #396-73 (Fuel Oils) and D #439-73 (Gasolines) available from the American Society for Testing Materials, 1916 Race Street, Philadelphia, Pa., 19103. Fuels containing non-hydrocarbonaceous materials such as alcohols (e.g., **methanol**).

US005378348 (Davis et al) discloses:

A flame burner comprising: burning a **Fischer-Tropsch** derived fuel which "boils", or has a boiling point, between 160 degrees C and 400 degrees C (320°/500° F: i.e. - 160°/260° C) in the burner of a jet engine (see column 1, lines 41-64) when used as a jet fuel to obtain flue gases and a flame. With regard to claim 5, when used in the burner of a jet engine the space about the exit of the engine is necessarily heated, therefore **US005378348 (Davis et al)** meets the broadly stated limitation of "**heating a space directly with the flue gases**".

US 20030027874 A1 (Herron et al) discloses:

> [0007] Accordingly, cobalt has been extensively investigated as a catalyst for the production of hydrocarbons with weights corresponding to the range of the gasoline, diesel, and higher weight fractions of crude oil. In particular, cobalt has been found to be suitable for catalyzing a process in which synthesis gas is converted to hydrocarbons having primarily five or more carbon atoms (i.e., where the C.sub.5+ selectivity of the catalyst is high). Depending on the molecular weight

product distribution, different Fischer-Tropsch product mixtures are ideally suited to different uses. For example, **Fischer-Tropsch product mixtures containing C.sub.5+ hydrocarbons may be processed to yield** gasoline, as well as heavier middle distillates. Further, Fischer-Tropsch product mixtures containing primarily C.sub.11+ hydrocarbons are also useful for further processing to yield middle distillates. **Middle distillates** typically include **heating oil,** diesel fuel, and **kerosene**. C.sub.20+ hydrocarbons are typically hydroprocesses to yield a lighter product, such as gasoline or middle distillates. See, for example, H. Schulz, Short History and Present Trends of Fischer-Tropsch Synthesis, APPLIED CATALYSIS A, vol.186, pp.3-12 (1999), which is hereby incorporated herein by reference in its entirety.

(Highlighting and Underlining Added)

THIS ACTION IS MADE FINAL

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

USPTO CUSTOMER CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARL D. PRICE whose telephone number is (571) 272-4880. The examiner can normally be reached on Monday through Friday between 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on (571) 272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CARL D. PRICE
Primary Examiner
Art Unit 3749

cp